FIG. 1

```
   1 gcctgttccc tctgctctgg gtctccgccg gcgcccgccc cgccagcctc
  51 acctgcgcgg cacgtgaccc gcaccgcccg tgggcacctt gaaggcggat
 101 cccgcgcgcc cccgctcctg caggctgttt ttcttcaaat aaagaacatg
 151 gtgaaactga ttcacacatt agctgatcat ggtgacgatg tcaactgctg
 201 tgccttctcc ttttccctct tggctacttg ctccttggac aaaacaattc
 251 gcctgtactc gttacgtgac tttactgaac tgccacattc tccattgaag
 301 tttcatacct atgctgtcca ctgctgctgt ttctcccctt caggacatat
 351 tttggcatcg tgttcaacag atggtaccac tgtcctatgg aatactgaaa
 401 atggacagat gctggcagtg atggaacagc ctagtggcag ccctgtgagg
 451 gtttgccagt tttccccaga ctccacgtgt ttggcatcag gggcagctga
 501 tggaactgtg gttttgtgga atgcacagtc atacaaatta tatagatgtg
 551 gtagtgttaa agatggctcc ttggcggcat gtgcattttc tcctaatgga
 601 agcttctttg tcactggctc ctcatgtggt gatttaacag tgtgggatga
 651 taaaatgagg tgtctgcata gtgaaaaagc acatgatctt ggaattacct
 701 gctgcgattt ttcttcacag ccagtttctg atggagaaca aggtcttcag
 751 tttttttcgac tggcatcatg tggtcaggat tgccaagtca aaatttggat
 801 tgtttctttt acccatatct taggttttga attaaaatat aaaagtacac
 851 tgagtgggca ctgtgctcct gttctggctt gtgctttttc ccatgatggg
 901 cagatgctag tctcagggtc agtggataag tctgtcatag tatatgatac
 951 taatactgag aatatacttc acacattgac tcagcacacc aggtatgtca
1001 caacttgtgc ttttgcacct aataccctttt tacttgctac tggttcaatg
1051 gacaaaacag tgaacatctg gcaatttgac ctggaaacac tttgccaagc
1101 aaggcgcaca gaacatcagc tgaagcaatt taccgaagat tggtcagagg
1151 aggatgtctc aacatggctt tgtgcacaag atttaaaaga tcttgttggt
1201 attttcaaga tgaataacat tgatggaaaa gaactgttga atcttacaaa
1251 agaaagtctg gctgatgatt tgaaaattga atctctagga ctgcgtagta
1301 aagtgctgag gaaaattgaa gagctcagga ccaaggttaa atccctttct
1351 tcaggaattc ctgatgaatt tatatgtcca ataactagag aacttatgaa
1401 agatccggtc atcgcatcag atggctattc atatgaaaag gaagcaatgg
1451 aaaattggat cagcaaaaag aaacgtacaa gtcccatgac aaatcttgtt
1501 cttccttcag cggtacttac accaaatagg actctgaaaa tggccatcaa
1551 tagatggctg gagacacacc aaaagtaaaa ttgttgatat tgtattattt
1601 atattttcag tgatctcatt tgaatgattt ataggtaaat actaatcaga
1651 cattattaaa agcaaaacag gaaaaggta aacttcttaa atttagttac
1701 ctataaaaat tgtcaatttt cattctttaa aaaacacatg gacttactat
1751 aaaagccttt ttgtactagt gaaaagaatc ttcagctata tagaaataaa
1801 gttatacttt aaaaaaaa
```

FIG. 2

```
  1 MVKLIHTLAD HGDDVNCCAF SFSLLATCSL DKTIRLYSLR
 41 DFTELPHSPL KFHTYAVHCC CFSPSGHILA SCSTDGTTVL
 81 WNTENGQMLA VMEQPSGSPV RVCQFSPDST CLASGAADGT
121 VVLWNAQSYK LYRCGSVKDG SLAACAFSPN GSFFVTGSSC
161 GDLTVWDDKM RCLHSEKAHD LGITCCDFSS QPVSDGEQGL
201 QFFRLASCGQ DCQVKIWIVS FTHILGFELK YKSTLSGHCA
241 PVLACAFSHD GQMLVSGSVD KSVIVYDTNT ENILHTLTQH
281 TRYVTTCAFA PNTLLLATGS MDKTVNIWQF DLETLCQARR
321 TEHQLKQFTE DWSEEDVSTW LCAQDLKDLV GIFKMNNIDG
361 KELLNLTKES LADDLKIESL GLRSKVLRKI EELRTKVKSL
401 SSGIPDEFIC PITRELMKDP VIASDGYSYE KEAMENWISK
441 KKRTSPMTNL VLPSAVLTPN RTLKMAINRW LETHQK
```

FIG. 3

```
atggtgaaactgattcacacattagctgatcatggtgacgatgtcaactgctgtgccttc
 M  V  K  L  I  H  T  L  A  D  H  G  D  D  V  N  C  C  A  F
tcctttttccctcttggctacttgctccttggacaaaacaattcgcctgtactcgttacgt
 S  F  S  L  L  A  T  C  S  L  D  K  T  I  R  L  Y  S  L  R
gactttactgaactgccacattctccattgaagtttcatacctatgctgtccactgctgc
 D  F  T  E  L  P  H  S  P  L  K  F  H  T  Y  A  V  H  C  C
tgtttctccccttcaggacatattttggcatcgtgttcaacagatggtaccactgtccta
 C  F  S  P  S  G  H  I  L  A  S  C  S  T  D  G  T  T  V  L
tggaatactgaaaatggacagatgctggcagtgatggaacagcctagtggcagccctgtg
 W  N  T  E  N  G  Q  M  L  A  V  M  E  Q  P  S  G  S  P  V
agggtttgccagttttccccagactccacgtgtttggcatcaggggcagctgatggaact
 R  V  C  Q  F  S  P  D  S  T  C  L  A  S  G  A  A  D  G  T
gtggttttgtggaatgcacagtcatacaaattatatagatgtggtagtgttaaagatggc
 V  V  L  W  N  A  Q  S  Y  K  L  Y  R  C  G  S  V  K  D  G
tccttggcggcatgtgcatttctcctaatggaagcttctttgtcactggctcctcatgt
 S  L  A  A  C  A  F  S  P  N  G  S  F  F  V  T  G  S  S  C
ggtgatttaacagtgtgggatgataaaatgaggtgtctgcatagtgaaaaagcacatgat
 G  D  L  T  V  W  D  D  K  M  R  C  L  H  S  E  K  A  H  D
cttggaattacctgctgcgatttttcttcacagccagtttctgatggagaacaaggtctt
 L  G  I  T  C  C  D  F  S  S  Q  P  V  S  D  G  E  Q  G  L
cagtttttcgactggcatcatgtggtcaggattgccaagtcaaaatttggattgtttct
 Q  F  F  R  L  A  S  C  G  Q  D  C  Q  V  K  I  W  I  V  S
tttacccatatcttaggttttgaattaaaatataaaagtacactgagtgggcactgtgct
 F  T  H  I  L  G  F  E  L  K  Y  K  S  T  L  S  G  H  C  A
cctgttctggcttgtgctttttcccatgatgggcagatgctagtctcagggtcagtggat
 P  V  L  A  C  A  F  S  H  D  G  Q  M  L  V  S  G  S  V  D
aagtctgtcatagtatatgatactaatactgagaatatacttcacacattgactcagcac
 K  S  V  I  V  Y  D  T  N  T  E  N  I  L  H  T  L  T  Q  H
accaggtatgtcacaacttgtgcttttgcacctaatacccttttacttgctactggttca
 T  R  Y  V  T  T  C  A  F  A  P  N  T  L  L  L  A  T  G  S
atggacaaaacagtgaacatctggcaatttgacctggaaacactttgccaagcaaggcgc
 M  D  K  T  V  N  I  W  Q  F  D  L  E  T  L  C  Q  A  R  R
acagaacatcagctgaagcaatttaccgaagattggtcagaggaggatgtctcaacatgg
 T  E  H  Q  L  K  Q  F  T  E  D  W  S  E  E  D  V  S  T  W
ctttgtgcacaagatttaaaagatcttgttggtattttcaagatgaataacattgatgga
 L  C  A  Q  D  L  K  D  L  V  G  I  F  K  M  N  N  I  D  G
aaagaactgttgaatcttacaaaagaaagtctggctgatgatttgaaaattgaatctcta
 K  E  L  L  N  L  T  K  E  S  L  A  D  D  L  K  I  E  S  L
ggactgcgtagtaaagtgctgaggaaaattgaagagctcaggaccaaggttaaatccctt
 G  L  R  S  K  V  L  R  K  I  E  E  L  R  T  K  V  K  S  L
tcttcaggaattcctgatgaatttatatgtccaataactagagaacttatgaaagatccg
 S  S  G  I  P  D  E  F  I  C  P  I  T  R  E  L  M  K  D  P
gtcatcgcatcagatggctattcatatgaaaaggaagcaatggaaaattggatcagcaaa
 V  I  A  S  D  G  Y  S  Y  E  K  E  A  M  E  N  W  I  S  K
aagaaacgtacaagtcccatgacaaatcttgttcttccttcagcggtacttacaccaaat
 K  K  R  T  S  P  M  T  N  L  V  L  P  S  A  V  L  T  P  N
aggactctgaaaatggccatcaatagatggctggagacacaccaaaagtaa
 R  T  L  K  M  A  I  N  R  W  L  E  T  H  Q  K
```

10027441.022502

FIG. 4A

gaattcggctttcacctgcgcggcacgtgacccgcaccgcccgtgggcaccttg
aaggcggatcccgcgcgcccccgctcctgcaggctgtttttcttcaaataaaga
acatggtgaaactgattcacacattagctgatcatggtgacgatgtcaactgct
gtgccttctccttttccctcttggctacttgctccttggacaaaacaattcgcc
tgtactcgttacgtgactttactgaactgccacattctccattgaagtttcata
cctatgctgtccactgctgctgtttctccccttcaggacatattttggcatcgt
gttcaacagatggtaccactgtcctatggaatactgaaaatggacagatgctgg
cagtgatggaacagcctagtggcagccctgtgagggtttgccagttttccccag
actccacgtgtttggcatcaggggcagctgatggaactgtggttttgtggaatg
cacagtcatacaaattatatagatgtggtagtgttaaagatggctccttggcgg
catgtgcattttctcctaatggaagcttctttgtcactggctcctcatgtggtg
atttaacagtgtgggatgataaaatgaggtgtctgcatagtgaaaaagcacatg
atcttggaattacctgctgcgatttttcttcacagccagtttctgatggagaac
aaggtcttcagtttttcgactggcatcatgtggtcaggattgccaagtcaaaa
tttggattgtttcttttacccatatcttaggttttgaattaaaatataaaagta
cactgagtgggcactgtgctcctgttctggcttgtgctttttcccgtgatgggc
agatgctagtctcagggtcagtggataagtctgtcatagtatatgatactaata
ctgagaatatacttcacacattgactcagcacaccaggtatgtcacaacttgtg
cttttgcacctaataccctttacttgctactggttcaatggacaaaacagtga
acatctggcaatttgacctggaaacactttgccaagcaaggcgcacagaacatc
agctgaagcaatttaccgaagattggtcagaggaggatgtctcaacatggcttt
gtgcacaagatttaaaagatcttgttggtattttcaagatgaataacattgatg
gaaaagaactgttgaatcttacaaaagaaagtctggctgatgatttgaaaattg
aatctctaggactgcgtagtaaagtgctgaggaaaattgaagagctcaggacca
aggttaaatccctttcttcaggaattcctgatgaatttatatgtccaataacta
gagaacttatgaaagatccggtcatcgcatcagatggctattcatatgaaaagg
aagcaatggaaaattggatcagcaaaaagaaacgtacaagtcccatgacaaatc
ttgttcttccttcagcggtacttacaccaaataggactctgaaaatggccatca
atagatggctggagacacaccaaaagtaaaaagccgaattc
(1532 bp)

Sequence Listing

FIG. 4B

IRLSPARHVTRTARGHLEGGSRAPPLLQAVFLQIKNMVKLIHTLADHGDDVNCCAFS
FSLLATCSLDKTIRLYSLRDFTELPHSPLKFHTYAVHCCCFSPSGHILASCSTDGTT
VLWNTENGQMLAVMEQPSGSPVRVCQFSPDSTCLASGAADGTVVLWNAQSYKLYRCG
SVKDGSLAACAFSPNGSFFVTGSSCGDLTVWDDKMRCLHSEKAHDLGITCCDFSSQP
VSDGEQGLQFFRLASCGQDCQVKIWIVSFTHILGFELKYKSTLSGHCAPVLACAFSR
DGQMLVSGSVDKSVIVYDTNTENILHTLTQHTRYVTTCAFAPNTLLLATGSMDKTVN
IWQFDLETLCQARRTEHQLKQFTEDWSEEDVSTWLCAQDLKDLVGIFKMNNIDGKEL
LNLTKESLADDLKIESLGLRSKVLRKIEELRTKVKSLSSGIPDEFICPITRELMKDP
VIASDGYSYEKEAMENWISKKKRTSPMTNLVLPSAVLTPNRTLKMAINRWLETHQK.

FIG. 4C

```
  1 acactgagtg ggcactgtgc tcctgttctg gcttgtgctt tttcccatga
 51 tgggcagatg ctagtctcag ggtcagtgga taagtctgtc atagtatatg
101 atactaatac tgagaatata cttcacacat tgactcagca caccaggtat
151 gtcacaactt gtgcttttgc acctaatacc cttttacttg ctactggttc
201 aatggacaaa acagtgaaca tctggcaatt tgacctggaa acactttgcc
251 aagcaaggcg cacagaacat cagctgaagc aatttaccga agattggtca
301 gaggaggatg tctcaacatg gctttgtgca caagatttaa aagatcttgt
351 tggtattttc aagatgaata acattgatgg aaaagaactg ttgaatctta
401 caaaagaaag tctggctgat gatttgaaaa ttgaatctct aggactgcgt
451 agtaaagtgc tgaggaaaat tgaagagctc aggaccaagg ttaaatccct
501 ttcttcagga attcctgatg aatttatatg tccaataact agagaactta
551 tgaaagatcc ggtcatcgca tcagatggct attcatatga aaaggaagca
601 atggaaaatt ggatcagcaa aaagaaacgt
```

FIG. 5

ttactttgtgtgaggaacatggtgaggttgattcacacgctggctgatcacggggatgacgt
cagctgctgcgccttctcggctgccctcctggccacctgctccttggacaagaccatccgtc
tgtactccctaagtgactttgttgaactgccgtactccccgctgaagttccacacctatgct
gtccactgctgctgtttctcaccctcaggacacgttttagcatcgtgctcgacagacgggac
cacggtgctgtggagctcgcacagcggacacaccctgaccgtgttggagcagccgggtggca
gccctgtgcgcgtctgttgcttttccccagactctgcctacctagcgtcagggctgccgat
ggatccattgctttgtggaatgcacagacatacaaactatataggtgtggtagtgtcaagga
tagctcattggtggcctgtgcgttttctcccgatggaggcctctttgtcactggctcctcgg
gcggggacttgacagtgtgggatgacagaatgaggtgtctacacagcgagaaggcgcacgat
ctcgggatcacctgctgcagcttttcctcacagcctctctctggcggagaaggcctccagtc
ttaccagttggcgtcatgtggtcaagactgtgaaatcaaactctgggctgttactattaccc
gtgtcttaggctttgaattaaaatataaaagcacactaagtgggcactgcgcccctgttctg
gcctgtgctttttcacatgatggaaagatgcttgcatcggggtcagtggataaatctgtcat
catacatggtatcggccctcagagtgtgctacacacgctgactcagcataccaggtatgtta
cgacttgtgcgtttgcacccaacactctcttacttgctactggttcaatggacaagacagtg
aacatttggcagtttgacctggaaacaccttgccaagcaggaagcatgaacgacccgctgaa
acatttcactgaagaatggtcagaggaggatgtctccgtgtggcttcgtgctcaaggcttgg
aagacctcgtcggtattttcagggcaaacaacatcgatgggaaagaactattgcatctcaca
aaggaaagtctggctggtgatttgaaaatcgaatctctagggctgcgcagcaaagtcctgag
gagtattgaagagctcagggccaagatggattccctctcttccggaatccctgacgagttca
tctgcccaataaccagagaactcatgaaggaccccgtcatcgcatcagatggctactcctac
gagagagaagcaatggaaagctggatccacaagaagaagcgtacgagccccatgacaaattt
ggctctcccttcactggtactgaccccaaacaggacactgaagatggccatcaaccgatggc
tggagacgcacgagaagtgaacgcgttcacaggcatcggatccactttcagtgatgccctgc
aaatgattcaaaatgctaagcagccatcacgaaagcaaaataaaaggaaaagacaaatgttc
aattcagttacttttaaaaactgtaaattatgagcagggcagtggtggtgcccacctttaat
cccagcactcaggaggcagagacaggtggatctccaggatcaggagttccaggacagcccag
tttatagggcaagtctcaggacggccaaggctacacagagaaaccctgtctcaaaaaccca
aaacccaaaaaaaaaaaaaaaaagtcaattatctttaaaacacagatttatatatctatt
gtcattgctatttctgtaaaggtgaaatattttttttttgcaataatgagaaactatgta
gaaataaaacttcactatgactttaaaaaaaaaaaaaaaa

FIG. 6

MVRLIHTLADHGDDVSCCAFSAALLATCSLDKTIRLYSLSDFVELPYSPLKFHT

YAVHCCCFSPSGHVLASCSTDGTTVLWSSHSGHTLTVLEQPGGSPVRVCCF

SPDSAYLASGAADGSIALWNAQTYKLYRCGSVKDSSLVACAFSPDGGLFVTG

SSGGDLTVWDDRMRCLHSEKAHDLGITCCSFSSQPLSGGEGLQSYQLASCG

QDCEIKLWAVTITRVLGFELKYKSTLSGHCAPVLACAFSHDGKMLASGSVDKS

VIIHGIGPQSVLHTLTQHTRYVTTCAFAPNTLLLATGSMDKTVNIWQFDLETPC

QAGSMNDPLKHFTEEWSEEDVSVWLRAQGLEDLVGIFRANNIDGKELLHLTK

ESLAGDLKIESLGLRSKVLRSIEELRAKMDSLSSGIPDEFICPITRELMKDPVIA

SDGYSYEREAMESWIHKKKRTSPMTNLALPSLVLTPNRTLKMAINRWLETHEK

FIG. 7A

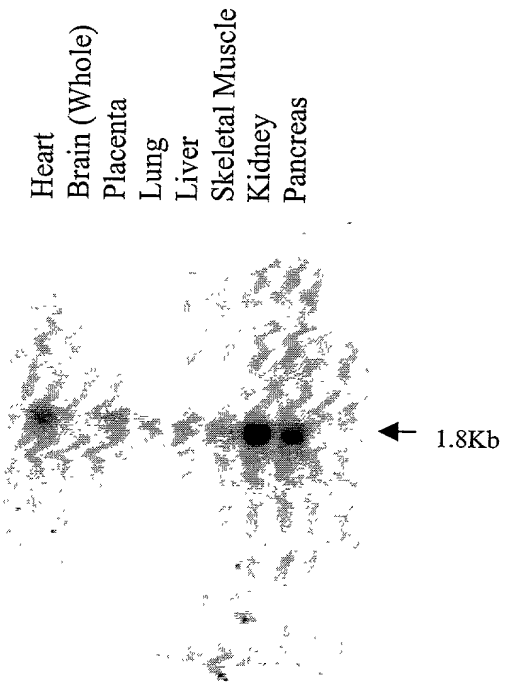

Heart
Brain (Whole)
Placenta
Lung
Liver
Skeletal Muscle
Kidney
Pancreas
1.8Kb

FIG. 7B

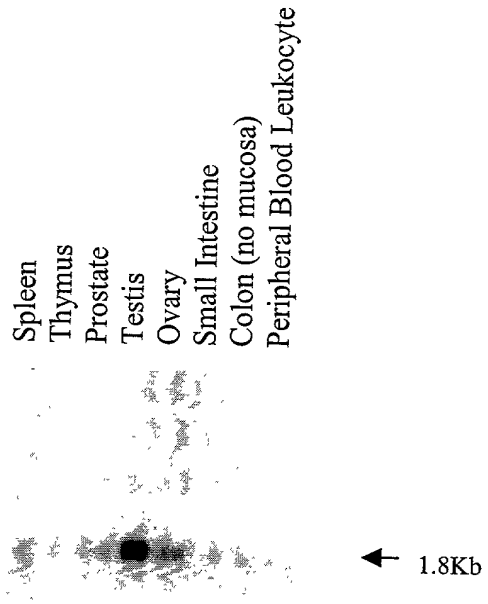
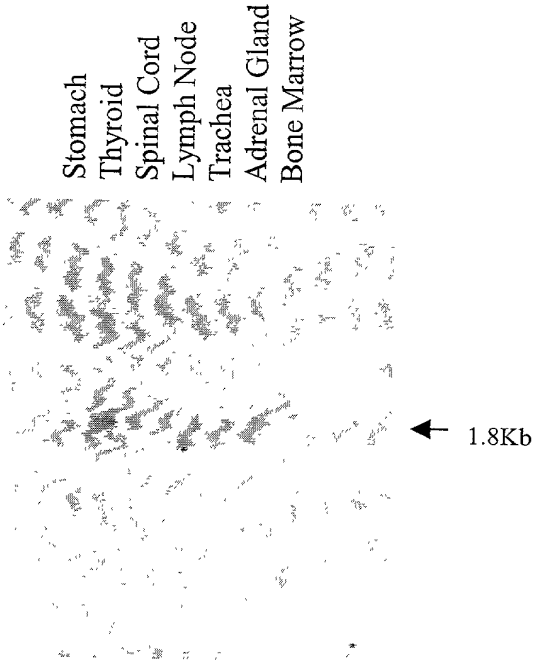

Spleen
Thymus
Prostate
Testis
Ovary
Small Intestine
Colon (no mucosa)
Peripheral Blood Leukocyte
1.8Kb

FIG. 7C


Stomach
Thyroid
Spinal Cord
Lymph Node
Trachea
Adrenal Gland
Bone Marrow
1.8Kb

Promyelocytic Leukemia HL-60
HeLa S3
Chronic Myelogenous Leukemia K-562
Lymphoblstic Leukemia MOLT-4
Burkitt's Lymphoma RAJI
Colorectal Adenocarcinoma SW480
Lung Carcinoma A549
Melanoma G-361
1.8Kb

FIG. 7D

FIG. 8

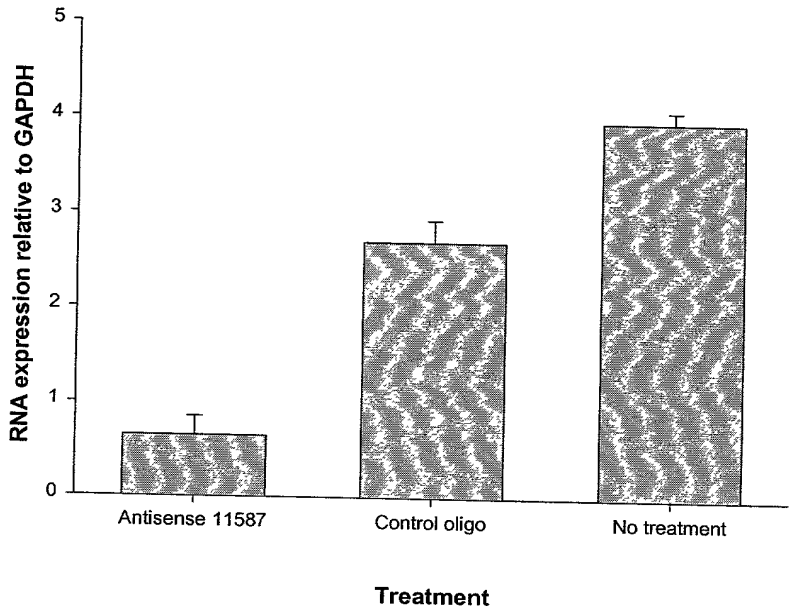

RNA expression relative to GAPDH
5
4
3
2
1
0
Antisense 11587
Control oligo
No treatment
Treatment

FIG. 9

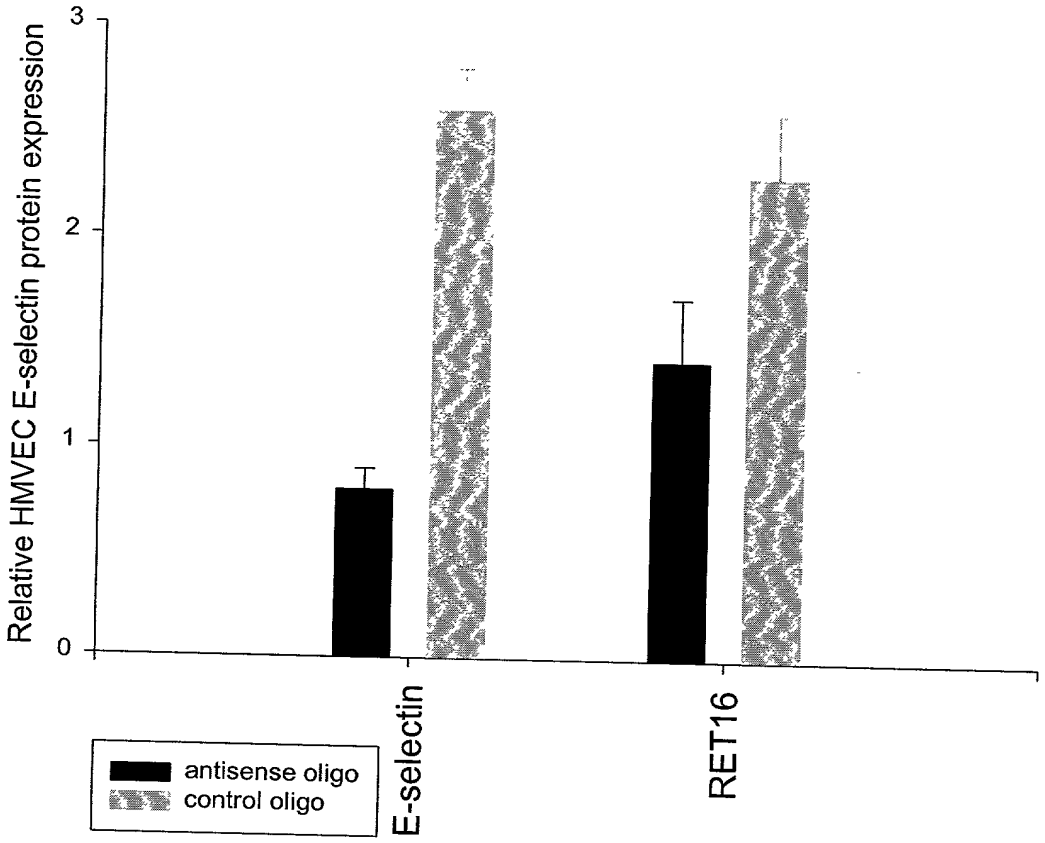

Relative HMVEC E-selectin protein expression
3
2
1
0
antisense oligo
control oligo
E-selectin
RET16

FIG. 10A

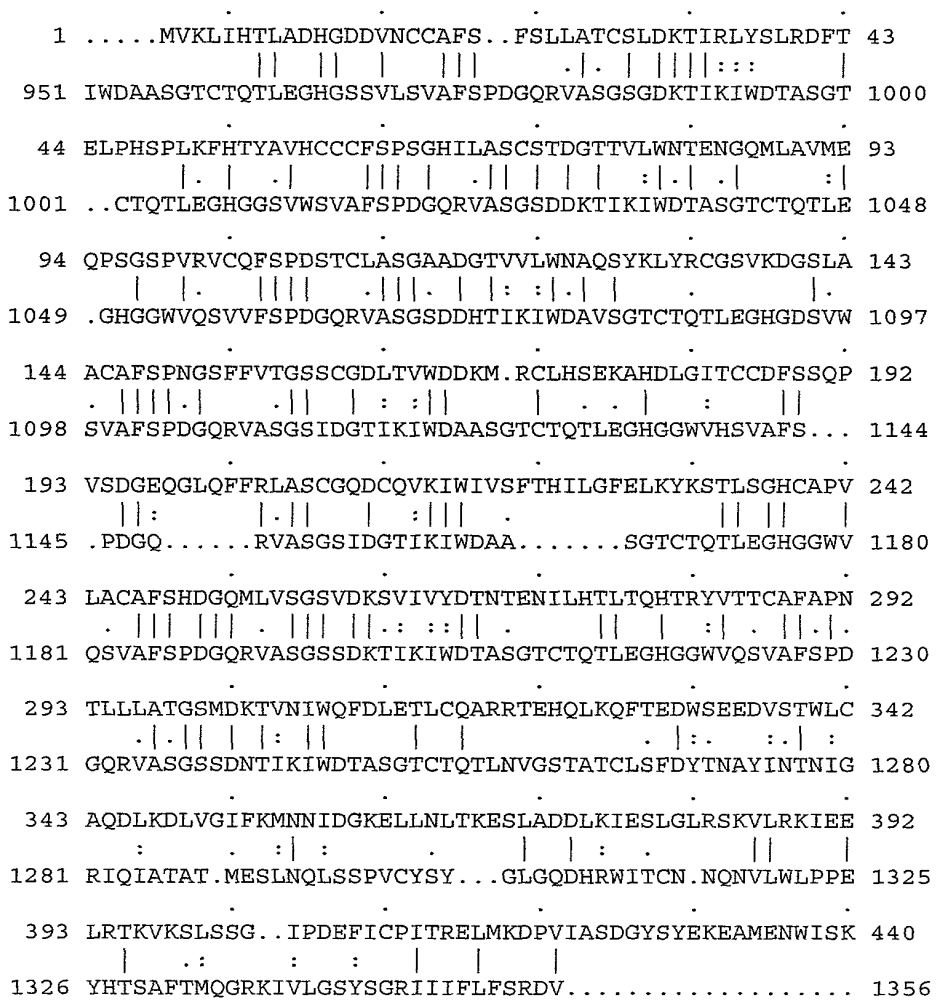
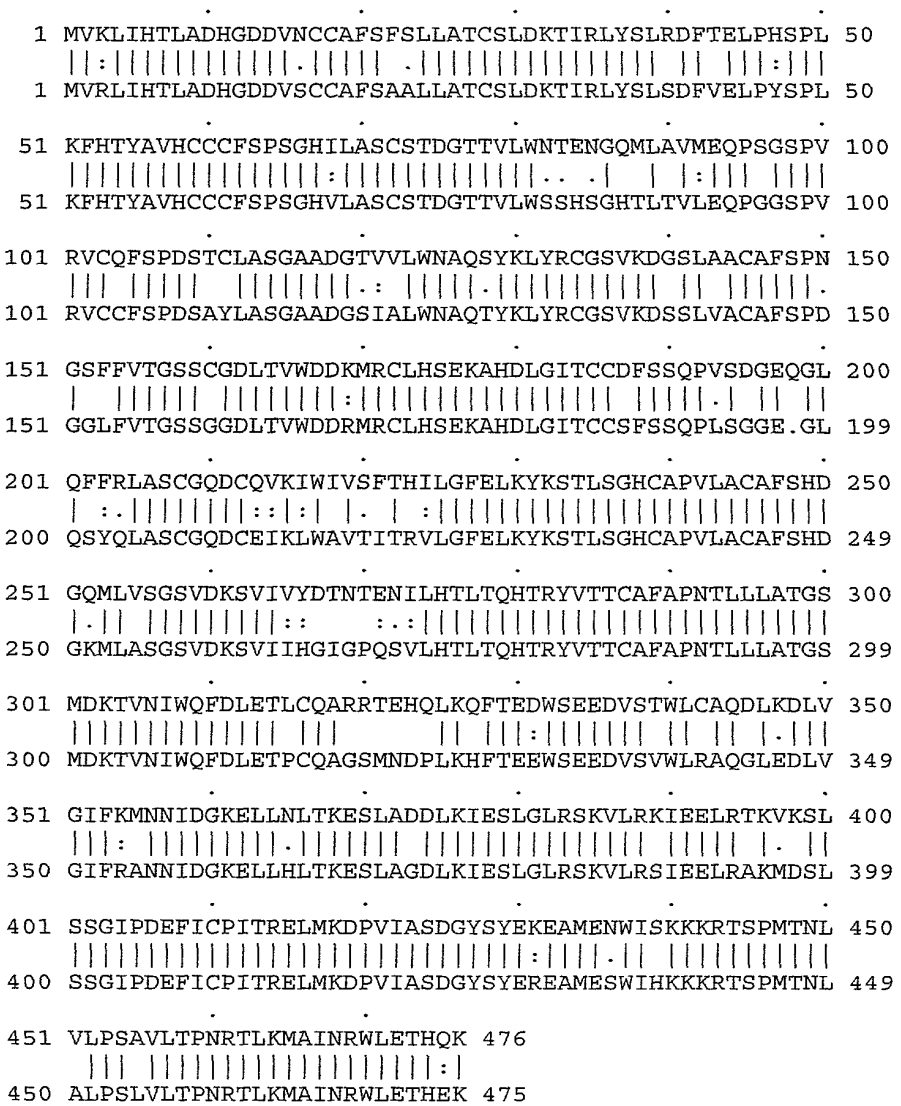

1 .....MVKLIHTLADHGDDVNCCAFS..FSLLATCSLDKTIRLYSLRDFT 43
951 IWDAASGTCTQTLEGHGSSVLSVAFSPDGQRVASGSGDKTIKIWDTASGT 1000
44 ELPHSPLKFHTYAVHCCCFSPSGHILASCSTDGTTVLWNTENGQMLAVME 93
1001 ..CTQTLEGHGGSVWSVAFSPDGQRVASGSDDKTIKIWDTASGTCTQTLE 1048
94 QPSGSPVRVCQFSPDSTCLASGAADGTVVLWNAQSYKLYRCGSVKDGSLA 143
1049 .GHGGWVQSVVFSPDGQRVASGSDDHTIKIWDAVSGTCTQTLEGHGDSVW 1097
144 ACAFSPNGSFFVTGSSCGDLTVWDDKM.RCLHSEKAHDLGITCCDFSSQP 192
1098 SVAFSPDGQRVASGSIDGTIKIWDAASGTCTQTLEGHGGWVHSVAFS... 1144
193 VSDGEQGLQFFRLASCGQDCQVKIWIVSFTHILGFELKYKSTLSGHCAPV 242
1145 .PDGQ......RVASGSIDGTIKIWDAA.......SGTCTQTLEGHGGWV 1180
243 LACAFSHDGQMLVSGSVDKSVIVYDTNTENILHTLTQHTRYVTTCAFAPN 292
1181 QSVAFSPDGQRVASGSSDKTIKIWDTASGTCTQTLEGHGGWVQSVAFSPD 1230
293 TLLLATGSMDKTVNIWQFDLETLCQARRTEHQLKQFTEDWSEEDVSTWLC 342
1231 GQRVASGSSDNTIKIWDTASGTCTQTLNVGSTATCLSFDYTNAYINTNIG 1280
343 AQDLKDLVGIFKMNNIDGKELLNLTKESLADDLKIESLGLRSKVLRKIEE 392
1281 RIQIATAT.MESLNQLSSPVCYSY...GLGQDHRWITCN.NQNVLWLPPE 1325
393 LRTKVKSLSSG..IPDEFICPITRELMKDPVIASDGYSYEKEAMENWISK 440
1326 YHTSAFTMQGRKIVLGSYSGRIIIFLFSRDV..... 1356

FIG. 10B

```
                .         .         .         .         .
  1 .MVKLIHTLADHGDDVNCCAFS..FSLLATCSLDKTIRLYSLRDFTELPH 47
      ::: |  |   :    |||   ||||  | || | .: .    || |
451 NEPRILTT..DR..EAVAVAFSPGGSLLAGGSGDKLIHVWDVASGDEL.H 495
                .         .         .         .         .
 48 SPLKFHTYAVHCCCFSPSGHILASCSTDGTTVLWNTENGQMLAVMEQPSG 97
    . |. ||  |    ||| | :||| | | |  ||.    :  || |  .
496 T.LEGHTDWVRAVAFSPDGALLASGSDDATVRLWDVAAAEERAVFEGHTH 544
                .         .         .         .         .
 98 SPVRVCQFSPDSTCLASGAADGTVVLWNAQSYKLYRCGSVKDGSLAACAF 147
      . :  |||| . .|||. |||  |||  .   :         . | ||
545 YVLDIA.FSPDGSMVASGSRDGTARLWNVATGTEHAVLKGHTDYVYAVAF 593
                .         .         .         .         .
148 SPNGSFFVTGSSCGDLTVWD...DKMRCLHSEKAHDLGITCCDFSSQPVS 194
    ||.||   .||  | : .||    | | .    | .  :    ||
594 SPDGSMVASGSRDGTIRLWDVATGKERDVLQAPAEN..VVSLAFS....P 637
                .         .         .         .         .
195 DGEQGLQFFRLASCGQDCQVKIWIVSFTHILGFELKYKSTLSGHCAPVLA 244
    ||   .        | |  | :| |.    |        |  ||   | |
638 DGSMLVH.......GSDSTVHLWDVASGEAL.......HTFEGHTDWVRA 673
                .         .         .         .         .
245 CAFSHDGQMLVSGSVDKSVIVYDTNTENILHTLTQHTRYVTTCAFAPNTL 294
     ||| || :| ||| |:.: .:|   :    ||  ||  | . || |
674 VAFSPDGALLASGSDDRTIRLWDVAAQEEHTTLEGHTEPVHSVAFHPEGT 723
                .         .         .         .         .
295 LLATGSMDKTVNIWQFDLETLCQARRTEHQLKQFTEDWSEEDVSTWLCAQ 344
     ||. | | |: ||    |
724 TLASASEDGTIRIWPIATE.............................. 742
```

US 7,141,654 B2

FIG. 10C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51 KFHTYAVHCCCFSPSGHVLASCSTDGTTVLWSSHSGHTLTVLEQPGGSPV 100
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101 RVCCFSPDSAYLASGAADGSIALWNAQTYKLYRCGSVKDSSLVACAFSPD 150
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201 QFFRLASCGQDCQVKIWIVSFTHILGFELKYKSTLSGHCAPVLACAFSHD 250
200 QSYQLASCGQDCEIKLWAVTITRVLGFELKYKSTLSGHCAPVLACAFSHD 249
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300 MDKTVNIWQFDLETPCQAGSMNDPLKHFTEEWSEEDVSVWLRAQGLEDLV 349
351 GIFKMNNIDGKELLNLTKESLADDLKIESLGLRSKVLRKIEELRTKVKSL 400
350 GIFRANNIDGKELLHLTKESLAGDLKIESLGLRSKVLRSIEELRAKMDSL 399
401 SSGIPDEFICPITRELMKDPVIASDGYSYEKEAMENWISKKKRTSPMTNL 450
400 SSGIPDEFICPITRELMKDPVIASDGYSYEREAMESWIHKKKRTSPMTNL 449
451 VLPSAVLTPNRTLKMAINRWLETHQK 476
450 ALPSLVLTPNRTLKMAINRWLETHEK 475

FIG. 10D

```
401 SSGIPDEFICPITRELMKDPVIASDGYSYEKEAMENWISKKKRTSPMTNL 450
          ||||||||||||||||||||||||||:|||||.|| ||||||||||
  1 .....DEFICPITRELMKDPVIASDGYSYEREAMESWIHKKKRTSPMTNL 45

451 VLPSAVLTPNRTLKMAINRWLETHQK 476
     ||| ||||||||||||||||||||||
 46 ALPSLVLTPNRTLKMAINRWLETHQK 71
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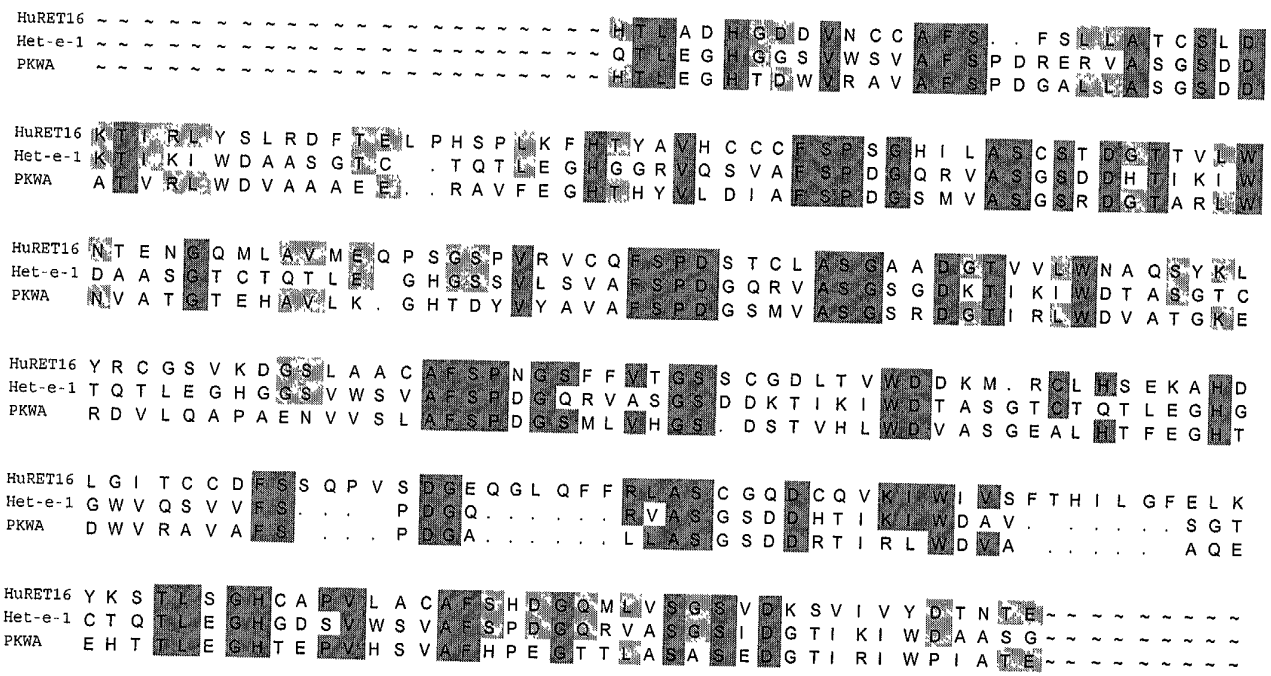
FIG. 10E



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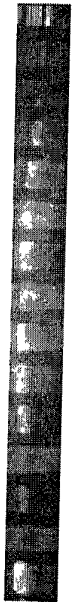

Fetal Kidney
Fetal Skeletal Muscle
Resting PBT's
24 hr aCD3/CD28 PBT"s
RAMOS B cell line
RAJI B cell line
Resting HMVEC's
6 hr TNF stim. HMVEC's
THP1 monocytes
GM-CSF/IL-4 human monocytes
Human Spleen RACE library
Human F. Liver RACE library
No DNA control
1 hr TNF clone #16 (RET16)

1 kb Ladder
Brain
Heart
Kidney
Liver
Lung
Pancreas
Placenta
Skeletal Muscle
Colon
Small Intestine
Ovary
Testis
Spleen
Thymus
Lymph Node
Bone Marrow
Tonsil
PBL's
Fetal Liver
Fetal Spleen
Fetal Thymus
Fetal Lung
Fetal Brain
Fetal Heart

FIG. 11

FIG. 12

Clone Count	
3	kidney, mw/renal cell CA, 65M, m/KIDNTUT15
3	kidney tumor, clear cell type cancer, pool, SUB, CGAP
2	breast, NF breast disease, 35F
2	brain, frontal, Huntington's, mw/CVA, 57M
2	prostate tumor, adenoCA, 66M, m/PROSNOT15, PROSDIN01
2	lung, mw/spindle cell carcinoid, 62F
2	brain, sensory-motor cortex, aw/CHF, 35M
2	liver/spleen, fetal, 20wM, NORM, CGAP/WM/WN
2	kidney, pool, SUB, 3' CGAP
1	pituitary tumor, adenoma, pool, 3', CGAP
1	prostate, PIN, mw/cancer, M, m/PROSTUP03, 3' CGAP
1	colon, cecum/descending, polyposis, polyp, M/F, pool, NORM
1	esophagus tumor, adenoCA, 61M, NORM
1	ovary tumor, papillary serous CA, 64F, WM/WN
1	bronchial, epithelial cells, 23M, t/20% smoke 20 hr
1	T-B lymphoblast line, leukemia, untreated
1	paraganglion tumor, paraganglioma, aw/renal cell CA, 46M
1	sm intestine, ileum, mw/CUC, 42M
1	brain, hippocampus, AD
1	brain, hippocampus, aw/aortic aneurysm, 45F, 5RP
1	ovary, aw/leiomyomata, 43F
1	bladder tumor, TC CA, 72M
1	breast, mw/ductal adenoCA, aw/node mets, 46F, m/BRSTTUT15
1	gallbladder, cholecystitis, cholelithiasis, 18F
1	prostate, mw/adenoCA, 68M, m/PROSTUT18
1	T- lymphocytes, CD4+, pool, t/CD3 antibodies
1	lung tumor, mets granulosa cell tumor, 80F
1	breast, PF changes, mw/adenoCA, 45F, m/BRSTTUT08
1	CML precursor line, K-562, 53F, t/5AZA 72 hr
1	lung tumor, adenoCA, 47M
1	colon, appendix, aw/leiomyomata, 37F
1	uterus, myometrium, mw/leiomyoma, 41F, NORM, m/UTRSTUT05
1	esophagus tumor, adenoCA, 61M
1	colon tumor, adenoCA, 75M, m/COLNNOT01
1	brain, temporal, mw/neuroepithelial tumor, epilepsy, 45M
1	brain, medulla, aw/CHF, 35M
1	kidney, 49M
1	uterus, endometrium, F, pool
1	paraganglion tumor, paraganglioma, aw/renal cell CA, 46M
1	prostate, AH, mw/adenoCA, node mets, 55M, lg/N, m/PROSTUT16
1	brain, neurogenic tumor line, SK-N-MC, neuroepithelioma, 14F
1	adrenal tumor, pheochromocytoma, 57F
1	brain, striatum/globus pallidus/putamen, aw/CHF, 81F, RP
1	bone marrow, tibia, aw/mets alveolar rhabdomyoSAR, 16M
1	thyroid, lymphocytic thyroiditis, mw/papillary CA, 30F
1	breast, mw/ductal CA, CA in situ, aw/node mets, 62F
1	liver tumor, mets neuroendocrine CA, 62F, m/ LIVRTMR01
1	umb cord blood, mononuclear cells, t/IL-5
1	uterus tumor, serous papillary CA, F, pooled, 3' CGAP
1	lung, fetal, 19w, NORM, CGAP/WM/WN
1	placenta, neonatal, F, NORM, WM
1	uterus, F, NORM, CGAP/WM/WN
1	pancreas tumor, adenoCA, 3' CGAP
1	brain, infant, 10wF, NORM, WM
1	testis, M, NORM, CGAP/WN
1	liver/spleen, fetal, 20wM, NORM, WM
1	mixed tissues, fetal lung, testis, B-cell, SUB, 3' CGAP/WN

10077144.021502

FIG. 13

tgacgagttcatctgcccaataaccagggaacttatgaaggaccccgtcatcgcatca
gatggctactcctacgagagagaagcaatggagagttggatccacaagaagaagcgca
cgagccccatgacaaacttggctcttccttcactggtactgaccccaaacaggactct
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FIG. 14

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KMAINRWLETHQK

FIG. 15

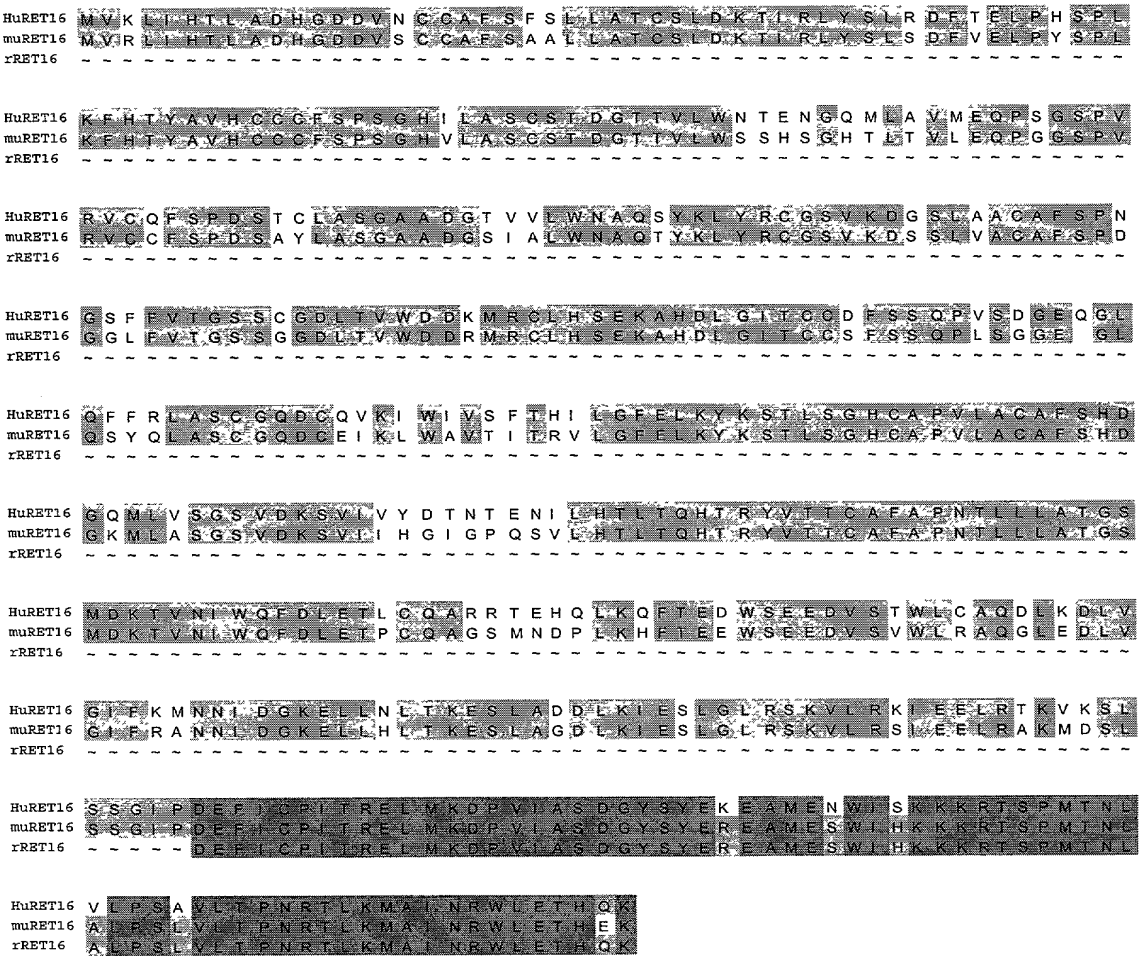

FIG. 16

```
RET16.1 M V K L I H T L A D H G D D V N C C A F S F S L L A T C S L D K T I R L Y S L R D F T E L P H S P L
RET16.2 M V K L I H T L A D H G D D V N C C A F S F S L L A T C S L D K T I R L Y S L R D F T E L P H S P L
RET16.3 M V K L I H T L A D H G D D V N C C A F S F S L L A T C S L D K T I R L Y S L R D F T E L P H S P L

RET16.1 K F H T Y A V H C C C F S P S G H I L A S C S T D G T T V L W N T E N G Q M L A V M E Q P S G S P V
RET16.2 K F H T Y A V H C C C F S P S G H I L A S C S T D G T T V L W N T E N G Q M L A V M E Q P S G S P V
RET16.3 K F H T Y A V H C C C F S P S G H I L A S C S T D G T T V L W N T E N G Q M L A V M E Q P S G S P V

RET16.1 R V C Q F S P D S T C L A S G A A D G T V V L W N A Q S Y K L Y R C G S V K D G S L A A C A F S P N
RET16.2 R V C Q F S P D S T C L A S G A A D G T V V L W N A Q S Y K L Y R C G S V K D G S L A A C A F S P N
RET16.3 R V C Q F S P D S T C L A S G A A D G T V V L W N A Q S Y K L Y R C G S V K D G S L A A C A F S P N

RET16.1 G S F F V T G S S C G D L T V W D D K M R C L H S E K A H D L G I T C C D F S S Q P V S D G E Q G L
RET16.2 G S F F V T G S S C G D L T V W D D K M R C L H S E K A H D L G I T C C D F S S Q P V S D G E Q G L
RET16.3 G S F F V T G S S C G D L T V W D D K M R C L H S E K A H D L G I T C C D F S S Q P V S D G E Q G L

RET16.1 Q F F R L A S C G Q D C Q V K I W I V S F T H I L G F E L K Y K S T L S G H C A P V L A C A F S R D
RET16.2 Q F F R L A S C G Q D C Q V K I W I V S F T H I L
RET16.3 Q F F R L A S C G Q D C Q V K I W I V S F T H I L G F E L K Y K S T L S G H C A P V L A C A F S H D

RET16.1 G Q M L V S G S V D K S V I V Y D T N T E N I L H T L T Q H T R Y V T T C A F A P N T L L L A T G S
RET16.2
RET16.3 G Q M L V S G S V D K S V I V Y D T N T E N I L H T L T Q H T R Y V T T C A F A P N T L L L A T G S

RET16.1 M D K T V N I W Q F D L E T L C Q A R R T E H Q L K Q F T E D W S E E D V S T W L C A Q D L K D L V
RET16.2                                 A R R T E H Q L K Q F T E D W S E E V V S T W L C A Q D L K D L V
RET16.3 M D K T V N I W Q F D L E T L C Q A R R T E H Q L K Q F T E D W S E E D V S T W L C A Q D L K D L V

RET16.1 G I F K M N N I D G K E L L N L T K E S L A D D L K I
RET16.2 G I F K M N N I D G K E L L N L T K E S L A D D L K I
RET16.3 G I F K M N N I D G K E L L N L T K E S L A D D L K I G W S P L A W S C L T A A S T S W A Q V I L L

RET16.1       E S L G L R S K V L R K I E E L R T K V K S L S S G I P D E F I C P I T R E L M K D P V I A S
RET16.2       E S L G L R S K V L R K I E E L R T K V K S L S S G I P D E F I C P I T R E L M K D P V I A S
RET16.3 P R P Q S L G L R S K V L R K I E E L R T K V K S L S S G I P D E F I C P I T R E L M K D P V I A S

RET16.1 D G Y S Y E K E A M E N W I S K K K R T S P M T N L V L P S A V L T P N R T L K M A I N R W L E T H
RET16.2 D G Y S Y E K E A M E N W I S K K K R T S P M T N L V L P S A V L T P N R T L K M A I N R W L E T H
RET16.3 D G Y S Y E K E A M E N W I S K K K R T S P M T N L V L P S A V L T P N R T L K M A I N R W L E T H

RET16.1 Q K
RET16.2 Q K
RET16.3 Q K
```

Patent Application Publication

FIG. 17

```
                 WD repeat 1
HuRET16.1  M V K L I H T L A D H G D D V N C C A F S F S L L A T C S L D K T I R L
MuRET16    M V R L I H T L A D H G D D V S C C A F S A A L L A T C S L D K T I R L
                                WD repeat 2
HuRET16.1  Y S L R D F T E L P H S P L K F H T Y A V H C C C F S P S G H I L A S C
MuRET16    Y S L S D F V E L P Y S P L K F H T Y A V H C C C F S P S G H V L A S C
                                          WD repeat 3
HuRET16.1  S T D G T T V L W N T E N G Q M L A V M E Q P S G S P V R V C Q F S P D
MuRET16    S T D G T T V L W S S H S G H T L T V L E Q P G G S P V R V C C F S P D
                                                   WD repeat 4
HuRET16.1  S T C L A S G A A D G T V V L W N A Q S Y K L Y R C G S V K D G S L A A
MuRET16    S A Y L A S G A A D G S I A L W N A Q T Y K L Y R C G S V K D S S L V A
                                                          WD repeat 5
HuRET16.1  C A F S P N G S F F V T G S S C G D L T V W D D K M R C L H S E K A H D
MuRET16    C A F S P D G G L F V T G S S G G D L T V W D D R M R C L H S E K A H D

HuRET16.1  L G I T C C D F S S Q P V S D G E Q G L Q F F R L A S C G Q D C Q V K I
MuRET16    L G I T C C S F S S Q P L S G G E - G L Q S Y Q L A S C G Q D C E I K L
                                         WD repeat 6
HuRET16.1  W I V S F T H I L G F E L K Y K S T L S G H C A P V L A C A F S H D G Q
MuRET16    W A V T I T R V L G F E L K Y K S T L S G H C A P V L A C A F S H D G K
                                                  WD repeat 7
HuRET16.1  M L V S G S V D K S V I V Y D T N T E N I L H T L T Q H T R Y V T T C A
MuRET16    M L A S G S V D K S V I I H G I G P Q S V L H T L T Q H T R Y V T T C A

HuRET16.1  F A P N T L L L A T G S M D K T V N I W Q F D L E T L C Q A R R T E H Q
MuRET16    F A P N T L L L A T G S M D K T V N I W Q F D L E T P C Q A G S M N D P
                        SAM domain
HuRET16.1  L K Q F T E D W S E E D V S T W L C A Q D L K D L V G I F K M N N I D G
MuRET16    L K H F T E E W S E E D V S V W L R A Q G L E D L V G I F R A N N I D G

HuRET16.1  K E L L N L T K E S L A D D L K I E S L G L R S K V L R K I E E L R T K
MuRET16    K E L L H L T K E S L A G D L K I E S L G L R S K V L R S I E E L R A K

HuRET16.1  V K S L S S G I P D E F I C P I T R E L M K D P V I A S D G Y S Y E K E
MuRET16    M D S L S S G I P D E F I C P I T R E L M K D P V I A S D G Y S Y E R E

HuRET16.1  A M E N W I S K K K R T S P M T N L V L P S A V L T P N R T L K M A I N
MuRET16    A M E S W I H K K K R T S P M T N L A L P S L V L T P N R T L K M A I N

HuRET16.1  R W L E T H Q K
MuRET16    R W L E T H E K
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FIG. 18

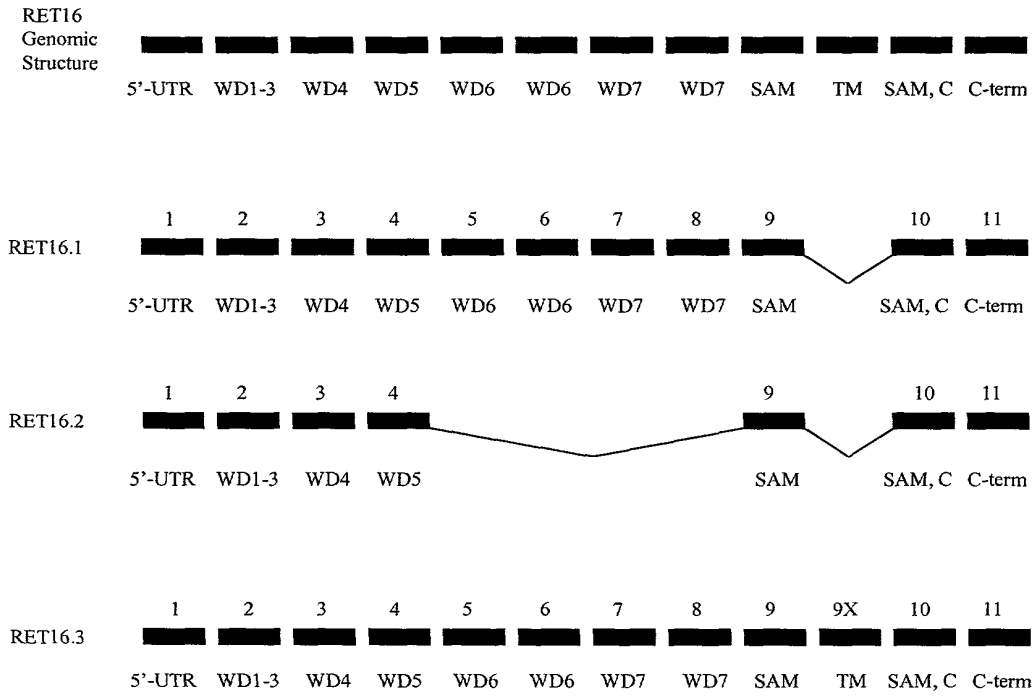
RET16
Genomic
Structure
5'-UTR WD1-3 WD4 WD5 WD6 WD6 WD7 WD7 SAM TM SAM, C C-term
RET16.1
1 2 3 4 5 6 7 8 9 10 11
5'-UTR WD1-3 WD4 WD5 WD6 WD6 WD7 WD7 SAM SAM, C C-term
RET16.2
1 2 3 4 9 10 11
5'-UTR WD1-3 WD4 WD5 SAM SAM, C C-term
RET16.3
1 2 3 4 5 6 7 8 9 9X 10 11
5'-UTR WD1-3 WD4 WD5 WD6 WD6 WD7 WD7 SAM TM SAM, C C-term

FIG. 19A

gaattcggctttcacctgcgcggcacgtgacccgcaccgcccgtgggcaccttgaaggcg
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tacttacaccaaataggactctgaaaatggccatcaatagatggctggagacacaccaaa
agtaaagaattc

FIG. 19B

MVKLIHTLADHGDDVNCCAFSFSLLATCSLDKTIRLYSLRDFTELPHSPLKFHTYAVH
CCCFSPSGHILASCSTDGTTVLWNTENGQMLAVMEQPSGSPVRVCQFSPDSTCLASGA
ADGTVVLWNAQSYKLYRCGSVKDGSLAACAFSPNGSFFVTGSSCGDLTVWDDKMRCLH
SEKAHDLGITCCDFSSQPVSDGEQGLQFFRLASCGQDCQVKIWIVSFTHILARRTEHQ
LKQFTEDWSEEVVSTWLCAQDLKDLVGIFKMNNIDGKELLNLTKESLADDLKIESLGL
RSKVLRKIEELRTKVKSLSSGIPDEFICPITRELMKDPVIASDGYSYEKEAMENWISK
KKRTSPMTNLVLPSAVLTPNRTLKMAINRWLETHQK

FIG. 20A

gaattcggctcgaggccggcgcccgccccgccagcctcacctgcgcggcacgtgacccgcac
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ttgtgcttttgcacctaataccctttttacttgctactggttcaatggacaaaacagtgaaca
tctggcaatttgacctggaaacactttgccaagcaaggcgcacagaacatcagctgaagcaa
tttaccgaagattggtcagaggaggatgtctcaacatggctttgtgcacaagatttaaaaga
tcttgttggtattttcaagatgaataacattgatggaaaagaactgttgaatcttacaaaag
aaagtctggctgatgatttgaaaattggctggagtcctctggcatggtcatgcctcactgca
gcttcaacctcctgggctcaagtgatcctcctacctcggcctcaatctctaggactgcgtag
taaagtgctgaggaaaattgaagagctcaggaccaaggttaaatccctttcttcaggaattc
ctgatgaatttatatgtccaataactagagaacttatgaaagatccggtcatcgcatcagat
ggctattcatatgaaaaggaagcaatggaaaattggatcagcaaaaagaaacgtacaagtcc
catgacaaatcttgttcttccttcagcggtacttacaccaaataggactctgaaaatggcca
tcaatagatggctggagacacaccaaaagtaaaattgttgatattgtattatttatattttc
agtgatctcatttgaatgatttataggtaaatactaatcagacattattaaaagcaaaacag
gaaaaaggtaaacttcttaaatttagttacctataaaaattgtcaattttcattctttaaaa
aacacatggacttactataaaagccttttttgtactagtgaaaagaatcttcagctatataga
aataaagttatcctttaaaaaaaaaaaaaaaaaaaaaaaagggcggccgc

US 7,744,902 B2

FIG. 20B

MVKLIHTLADHGDDVNCCAFSFSLLATCSLDKTIRLYSLRDFTELPHSPLKFHTYAV
HCCCFSPSGHILASCSTDGTTVLWNTENGQMLAVMEQPSGSPVRVCQFSPDSTCLAS
GAADGTVVLWNAQSYKLYRCGSVKDGSLAACAFSPNGSFFVTGSSCGDLTVWDDKMR
CLHSEKAHDLGITCCDFSSQPVSDGEQGLQFFRLASCGQDCQVKIWIVSFTHILGFE
LKYKSTLSGHCAPVLACAFSHDGQMLVSGSVDKSVIVYDTNTENILHTLTQHTRYVT
TCAFAPNTLLLATGSMDKTVNIWQFDLETLCQARRTEHQLKQFTEDWSEEDVSTWLC
AQDLKDLVGIFKMNNIDGKELLNLTKESLADDLKIGWSPLAWSCLTAASTSWAQVIL
LPRPQSLGLRSKVLRKIEELRTKVKSLSSGIPDEFICPITRELMKDPVIASDGYSYE
KEAMENWISKKKRTSPMTNLVLPSAVLTPNRTLKMAINRWLETHQK

US 7,723,502 B2

FIG. 21

h (LIYFWVMA) hydrophobic
l (LIVAM) aliphatic
s (GASNSTCP) small
p (STNREQHD) polar
(-) (D,E) negatively charged.

Ubox	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
RET16 Ubox	E	F	I	C	P	I	T	R	E	L	M	K	D	P	V	I	A	S	D	G	Y	S		Y	E	K	E
PRP19		M	L	C	A	I	S	G	K	V	P	R	R	P	V	L	S	P	K	S	R	T	I	F	E	K	S
consensus		h		s		l			p	h	h		(-)	s	h					s				h	p	p	

Ubox	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53
RET16 Ubox	A	M	E	N	W	I	S	K	K	K	R	T	S	P	M	T	N			L	V	L	P	S	A	V
PRP19	L	L	E	Q	Y	V		K	D	T	G	N	D	P	I	T	N	E	P	L	S	I	E	E	I	V
consensus		l		p		h							s	P		s										l